

Work Order ID 82002

\*82002\*

Page 1

March-21-12 3:42:41 PM

Item ID: D206-642-541

Accept

\*N9000040100\*

Setup Start \*NS1\*

Revision ID:

Item Name: Replacement Skidtube

Stop \*NS2\*

Start Date: 21/03/2012 Start Qty: 1.00

\*1\*

Cust Item ID:

Required Date: 30/03/2012 Req'd Qty: 1.00

\*1\*

Customer:

Reference:

Approvals: Process Plan: MLJ

Date: 24/03/21

Tooling:

Date:

Run Start \*NR1\*

QC:

Date:

SPC (Y/N):

Date:

Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr

Revision Nbr

D3274

D

100

0.00

\*100\*

DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy bluefile & type labels per PPP D206-642-541 CHG003

N/A

# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

**WorkOrder ID 82002****\*82002\***

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**\*N9000040100\***Setup Start **\*NS1\***

Revision ID:

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Item Name: Replacement Skidtube

Start Date: 21/03/2012 Start Qty: 1.00

**\*1\***

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Required Date: 30/03/2012 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

110

0.00

**\*110\***

Skidtubes

0.00

Skidtubes

Memo

\*\*\*\*VERIFY AND INSPECT THE MATERIAL PRIOR TO USE\*\*\*\*

1- Bend FWD end of tube using bend prog D3274 FWD and foil 10 as per dwg D3274, cut fwd end of tube with saw table setup D3274.

2- remove fwd indexing ridge as per dwg D3274. Prepare for welding.

3- weld fwd cap as per dwg D3274 and QSI004

AR Aluminum Rod Batch: M 120164

4- grind fwd cap weld on top surface only

5- Cut AFT end of tube at 170.9" as per dwg D3274 and deburr end.

6-Drill Aft cap pilot hole using DT8025

7 -Cleco DT8025 in position and install pilot hole drill Jig DT8742A,B,C,D.  
Drill 3/16" pilot holes as per Dwg D3274

8 -Remove inner indexing ridge on aft end of skidtube as per Dwg D3274 scribe batch #

9 -Open aft end cap holes to Ø0.208" as per Dwg D3274. Deburr aft end.

SAD 12-04-02

SAD 12-04-04

BB 12-04-10

SAD 12-4-11

SAD 12-04-11

SAD 12-4-11

# Dart Aerospace Ltd

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Stop \*NS2\*

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Start Date: 21/03/2012 Start Qty: 1.00

\*1\*

Cust Item ID:

Required Date: 30/03/2012 Req'd Qty: 1.00

\*1\*

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start \*NR1\*  
Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
114	QC5- Inspect part completeness to step on W/O	0.00							
<b>*114*</b>									
QC	Memo	0.00							
Quality Control									
116	QC10- Inspect visual per QSI004- ground welds	0.00							
<b>*116*</b>									
QC	Memo	0.00							
Quality Control									
120	Chemical Conversion Coat per QSI005 4.1	0.00							
<b>*120*</b>									
HandFinish	Memo	0.00							
Hand Finishing									

*Sizlerly*

*Sizlerly*

*12-4-11*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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Setup Start \*NS1\*

Revision ID:

Stop \*NS2\*

Item Name: Replacement Skidtube

Start Date: 21/03/2012 Start Qty: 1.00 \*1\*

Cust Item ID:

Required Date: 30/03/2012 Req'd Qty: 1.00 \*1\*

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start \*NR1\*

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

130 QC7-Inspect Chemical Conversion Coat 0.00

\*130\*

QC

Memo

0.00

Quality Control

1 SAP 12-04-12

150

0.00

\*150\*

Skidtubes

Skidtubes

Memo

0.00

Skidtubes

1-Open Ø0.313" and 0.375" crossbolt spacer holes as per Dwg D3274

2-Deburr crossbolt spacer holes as per Dwg D3274 and blow out chips from inside the tube

3-Bond web in place as per Dwg D3274 & QSI 015.

A/RSikaflex-291 M120813

Sikaflex expire date: 12-8-13

Start: 12-04-12 Time: 14:25

Finish: 12-04-12 Time: 2:15

(Adhere for 12 hours)

DC 12/04/12

NG/12-4-12  
De 12/04/12

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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\*NS1\*

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Stop

\*NS2\*

Item Name: Replacement Skidtube

Start Date: 21/03/2012 Start Qty: 1.00

\*1\*

Cust Item ID:

Required Date: 30/03/2012 Req'd Qty: 1.00

\*1\*

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

\*NR1\*

QC:

Date:

SPC (Y/N):

Date:

Stop

\*NR2\*

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

160

QC5- Inspect part completeness to step on W/O

0.00

\*160\*

QC

Memo

0.00

Quality Control

DP

12-4-17

170

0.00

\*170\*

Skidtubes

Skidtubes

Memo

0.00

Skidtubes

1-Bend AFT end of tube using bend prog. D3274 AFT as per dwg D3274. Install drop pins in crossbolt spacer holes to maintain web position.

2-DRILL PILOT HOLES FOR WEARPLATES USING D3274-1T2  
OPEN HOLES TO .297" . Deburr

3-DRILL TOE PIN HOLE .640" DIA AS PER DWG USING DT8935 FWD  
END OF TUBE  
DEBURR INSIDE OF HOLE AS NECESSARY (DO NOT ENLARGE HOLES)  
REMOVE ANY FOREIGN OBJECTS INSIDE OF TUBES

4- Countersink crossbolt spacer holes as per Dwg D3274

5-prepare for welding

DP 12-4-17

CF 12-4-17

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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Accept

\*N9000040100\*

Setup Start \*NS1\*

Revision ID:

Stop \*NS2\*

Item Name: Replacement Skidtube

Start Date: 21/03/2012 Start Qty: 1.00 \*1\*

Cust Item ID:

Required Date: 30/03/2012 Req'd Qty: 1.00 \*1\*

Customer:

Reference:

Approvals: Process Plan: Date: Tooling: Date:

Run Start \*NR1\*

QC: Date: SPC (Y/N): Date:

Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

180

QC5- Inspect part completeness to step on W/O

0.00

\*180\*

QC

Memo

0.00

Quality Control

190

0.00

\*190\*

Skidtubes

Skidtubes

Memo

0.00

1-Insert D2649 & D3275-1 crossbolt spacers. Weld as per QSI 004 and Dwg D3274. Remember to back drill each hole before welding the other side. Use aluminum rod  
A/RAluminum Rod

3-Grind cross bolt welds flush as per Dwg D3274.

4-Counterbore 5/16" x 0.750" deep as per Dwg D3274 and deburr.

3.06"  
4.6"

1 0 BE 12/4/18

11/20/164

BE 12/4/19

> 31/CC 12-4-19

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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**Work Order ID 82002****\*82002\***

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Item ID: D206-642-541

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**\*N9000040100\***Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Replacement Skidtube

Start Date: 21/03/2012 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 30/03/2012 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start **\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop **\*NR2\***Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

200

QC5- Inspect part completeness to step on W/O

0.00

**\*200\***

QC

Memo

0.00

Quality Control

210

QC10- Inspect visual per QSI004- ground welds

0.00

**\*210\***

QC

Memo

0.00

Quality Control

220

Pressure Wash per QSI005 4.3

0.00

**\*220\***

HandFinish

Memo

0.00

Hand Finishing

Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch

7/6 12-4-25

# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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Page 8

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Setup Start \*NS1\*

Revision ID:

Stop \*NS2\*

Item Name: Replacement Skidtube

Start Date: 21/03/2012 Start Qty: 1.00 \*1\*

Cust Item ID:

Required Date: 30/03/2012 Req'd Qty: 1.00 \*1\*

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start \*NR1\*

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
230	White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum	0.00							
*230*									
Powdercoat									
Powder Coating									
	Memo								
	START TIME: 12:50	0.00							
	OVEN TEMPERATURE: 320°F								
	FINISH TIME: 1:20								
240	QC3- Inspect Part Finish	0.00							
*240*									
QC									
Quality Control	Memo								
250		0.00							
*250*	HandFinishing								
HandFinish									
Hand Finishing	Memo								
	1-Install Nut Plate as per Dwg D3274. Apply LPS-3 to Nut Plate and rivets.								
	A/RN/ALPS-3 114596								
	2-Install inserts as per Dwg D3274. Use a drop of Sikaflex inside insert holes a								
	A/RSikaflex-291 121221								
	Sikaflex expire date: 13/09								

# Dart Aerospace Ltd

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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Setup Start \*NS1\*

Revision ID:

Stop \*NS2\*

Item Name: Replacement Skidtube

Start Date: 21/03/2012 Start Qty: 1.00

\*1\*

Cust Item ID:

Required Date: 30/03/2012 Req'd Qty: 1.00

\*1\*

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start \*NR1\*

QC:

Date:

SPC (Y/N):

Date:

Stop \*NR2\*

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

260

QC5- Inspect part completeness to step on W/O

0.00

\*260\*

QC

Memo

0.00

Quality Control

Inspect Nut Plate &amp; Inserts

270

HAND FINISHING RESOURCE #1

0.00

\*270\*

HandFinish

Memo

0.00

Hand Finishing

1-Install wearpads &amp; gaskets as per Dwg D3274.

2-Install ring as per Dwg D3274

A/RSikaflex-291 121221

Sikaflex expire date: 13/01

3-Inspect for foreign objects as per QSI 024

4-Spray inside of tube on both sides of web with LPS-3

A/R LPS-3 Batch: 114596

5-Install Aft Cap and seal with Sikaflex. Clean excess adhesive.

A/RSikaflex-291 121221

Sikaflex expire date: 13/01

# Dart Aerospace Ltd

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Run Start

\*NR1\*

Approvals:

Process Plan:

Date:

Tooling:

Date:

Stop

\*NR2\*

QC:

Date:

SPC (Y/N):

Date:

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

280

QC5- Inspect part completeness to step on W/O

0.00

\*280\*

QC

Memo

0.00

Quality Control

290

Identify as per dwg & Stock Location:

0.00

\*290\*

Packaging

Memo

0.00

Packaging

300

QC21- Final Inspection - Work Order Release

0.00

\*300\*

QC

Memo

0.00

Quality Control

1X

8P

12-5-10!

12/5/10

MF  
12-05-10

8-12-04/27

PPPS 82111

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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# Picklist Print

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Work Order ID: 82002

\*82002\*

Parent Item: D206-642-541

\*D206-642-541\*

Parent Item Name: Replacement Skidtube

Start Date: 21/03/2012

Required Date: 30/03/2012

Start Qty: 1.00

Required Qty: 1.00

## Comments:

IPP Rev:B05.09.23 Revised per D206-642 Rev. JKJ/JLM  
 IPP Rev:C 07-02-23 Added SS Wearplates & Gaskets JLM  
 IPP Rev:D 07-12-06 replace NAS1515H3L to D3672-1 DD  
 IPP Rev:E 08-04-17 as per PAR 08-015 DD verified by:EC  
 IPP Rev:F 08-06-02 add comment DD verified by:EC  
 IPP Rev:G 08-10-09 revise details DD verified by:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
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D2600-1-190

Manufactured

No

110

Each

121.0000

1

1

\*D2600-1-190\*

Extrusion Round 3" 206

\*\*

SAD 12-04-02

### Location

### Loc Qty

### Loc Code

HALL

45

69622

45

LG

76

76912

76

D3285-1

Manufactured

No

110

Each

56.0000

1

1

\*D3285-1\*

Cap

\*\*

BE12-0410

### Location

### Loc Qty

### Loc Code

LG002

56

52511

9

52647

47

D3282-041

Manufactured

No

150

Each

4.0000

1

1

\*D3282-041\*

Float Web (206L/407)

\*\*

### Location

### Loc Qty

### Loc Code

LG

4

74294

1

77498

3

1

116 12-4-12

# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

March-21-12 3:42:45 PM

Work Order ID: 82002

\*82002\*

Parent Item: D206-642-541

\*D206-642-541\*

Parent Item Name: Replacement Skidtube

Start Date: 21/03/2012

Required Date: 30/03/2012

Start Qty: 1.00

Required Qty: 1.00

D2649

Manufactured

No

190

Each

1,360.000

12

12

\*D2649\*

Cross Bolt Spacer

\*\*

BE 12/04/18  
B 79564 \*12

Location

Loc Qty

Loc Code

LG

903

77574

2

79502

403

79503

399

79565

99

LG001

457

65317

1

68224

2

68507

11

71355

2

72704

2

72841

11

73390

8

73857

21

73858

53

73859

4

73860

4

78020

6

78583

2

79566

330

D3275-1

Manufactured

No

190

Each

226.0000

12

12

\*D3275-1\*

Crossbolt Spacer

\*\*

BE 12/04/18

Location

Loc Qty

Loc Code

LG

103

80184

103

LG002

123

66930

106

74437

17

12

# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



# Picklist Print

March-21-12 3:42:45 PM

Work Order ID: 82002

\*82002\*

Parent Item: D206-642-541

\*D206-642-541\*

Parent Item Name: Replacement Skidtube

Start Date: 21/03/2012

Required Date: 30/03/2012

Start Qty: 1.00

Required Qty: 1.00

CR3212-4-03

Purchased

No

250

Each

1,432.000

2

2

\*CR3212-4-03\*

Cherry Rivet

\*\*

2

(2P)

12/04/26

## Location

## Loc Qty

## Loc Code

FP002

442

114859 ✓

442

ST331

990

110139

2

119017

988

D3415-041

Manufactured

No

250

Each

14.0000

1

1

\*D3415-041\*

Nut Plate

\*\*

1

(2P)

12/04/26

## Location

## Loc Qty

## Loc Code

ST042

14

67605 ✓

14

CCR264SS3-3

Purchased

No

250

Each

575.0000

2

2

\*CCR264SS3-3\*

Cherry Rivet

\*\*

2

(2P)

12/04/26

## Location

## Loc Qty

## Loc Code

ST331

575

113973

2

117849 ✓

109

119017

464

# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

March-21-12 3:42:45 PM

Work Order ID: 82002

\*82002\*

Parent Item: D206-642-541

\*D206-642-541\*

Parent Item Name: Replacement Skidtube

Start Date: 21/03/2012

Required Date: 30/03/2012

Start Qty: 1.00

Required Qty: 1.00

ALS4-1032-130

Purchased

No

250

Each

4,213.000

78

78

\*AI S4-1032-130\*

Insert

\*\*

78

(2P)

12/04/26

Location

Loc Qty

Loc Code

ST280

283

119084

116

120671

167

ST281

3930

120807

1930

120837 ✓

2000

D3536-15

Manufactured

No

270

Each

20.0000

1

1

\*D3536-15\*

Gasket

\*\*

1

(2P)

12/04/26

Location

Loc Qty

Loc Code

FP002

20

73318

16

80333

4

D3536-23

Manufactured

No

270

Each

34.0000

1

1

\*D3536-23\*

Gasket

\*\*

1

(2P)

12/04/26

Location

Loc Qty

Loc Code

FP002

34

74510

8

80334 ✓

26

D3536-35

Manufactured

No

270

Each

24.0000

1

1

\*D3536-35\*

Gasket

\*\*

1

(2P)

12/04/26

Location

Loc Qty

Loc Code

FP002

24

80335

24

# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

March-21-12 3:42:45 PM

Work Order ID: 82002

\*82002\*

Parent Item: D206-642-541

\*D206-642-541\*

Parent Item Name: Replacement Skidtube

Start Date: 21/03/2012

Required Date: 30/03/2012

Start Qty: 1.00

Required Qty: 1.00

D3536-39	Manufactured	No	270	Each	12.0000	1	1	
<b>*D3536-39*</b>						**		1 (DP) 12/04/26
Gasket								

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
-----------------	----------------	-----------------

FP002	12	
73317 ✓	12	

D3535-15	Manufactured	No	270	Each	18.0000	1	1	
<b>*D3535-15*</b>						**		1 (DP) 12/04/26
Wearshoe								

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
-----------------	----------------	-----------------

FP001	18	
74512	6	
80328 ✓	12	

D3535-35	Manufactured	No	270	Each	24.0000	1	1	
<b>*D3535-35*</b>						**		1 (DP) 12/04/26
Wearshoe								

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
-----------------	----------------	-----------------

FP001	24	
82064 ✓		
67598	1	
70815	1	
78873	13	
79849	1	
80332	8	

D3535-39	Manufactured	No	270	Each	18.0000	1	1	
<b>*D3535-39*</b>						**		1 (DP) 12/04/26
Wearshoe								

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
-----------------	----------------	-----------------

FP001	18	
69759	1	
73316	5	
74513 ✓	12	

# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

March-21-12 3:42:46 PM

Work Order ID: 82002

\*82002\*

Parent Item: D206-642-541

\*D206-642-541\*

Parent Item Name: Replacement Skidtube

Start Date: 21/03/2012

Required Date: 30/03/2012

Start Qty: 1.00

Required Qty: 1.00

D3535-23

Manufactured No

270 Each

27.0000 1 1

\*D3535-23\*

Wearshoe

\*\*

1 (2P) 12/04/26

Location

Loc Qty

Loc Code

FP001

81355✓  
74508  
80330

27  
9  
18

D3537-3

Manufactured No

270 Each

6.0000 1 1

\*D3537-3\*

Wearpad

\*\*

1 (2P) 12/04/26

Location

Loc Qty

Loc Code

FP002

78836✓  
74500  
76986

6  
1  
5

D3537-1

Manufactured No

270 Each

87.0000 9 9

\*D3537-1\*

Wearpad

\*\*

9 (2P) 12/04/26

Location

Loc Qty

Loc Code

FP001

83255✓  
79833  
79835

82  
28  
54

FP002

69817

5  
5

AN960C10L

\* NAS1149C0332 ✓ Purchased

No

270 Each

0.0000 80 80

\*AN960C10I \*

washer

~~210~~ 121509✓

\*\*

80 (2P) 12/04/26

AN960C416

\* NAS1149C0463 ✓ Purchased

No

270 Each

0.0000 1 1

\*AN960C416\*

washer

117735✓

\*\*

1 (2P) 12/04/26

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



# Picklist Print

March-21-12 3:42:46 PM

Work Order ID: 82002

\*82002\*

Parent Item: D206-642-541

\*D206-642-541\*

Parent Item Name: Replacement Skidtube

Start Date: 21/03/2012

Required Date: 30/03/2012

Start Qty: 1.00

Required Qty: 1.00

D3672-1

Manufactured No

270 Each

1,196.000

2

2

\*D3672-1\*

Phenolic Washer

\*\*

2 (2P) 12/04/26

## Location

## Loc Qty

## Loc Code

FP001

192

66821

192

ST060

1004

72229

4

76277 ✓

500

80369

500

AN3C4A

Purchased

No

270

Each

3,047.000

80

80

\*AN3C4A\*

BOLT

\*\*

80 (2P) 12/04/26

## Location

## Loc Qty

## Loc Code

ST350

2997

117688

5

118112

16

119749

10

120187 ✓

2000

120423

10

120521

510

120769

355

120799

25

120930

66

ST351

50

121060

50

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

Page 8

March-21-12 3:42:46 PM

Work Order ID: 82002

\*82002\*

Parent Item: D206-642-541

\*D206-642-541\*

Parent Item Name: Replacement Skidtube

Start Date: 21/03/2012

Required Date: 30/03/2012

Start Qty: 1.00

Required Qty: 1.00

AN4C5A

Purchased

No

270

Each

256.0000

1

1

\*AN4C5A\*

BOLT

\*\*

1

(2P)

12/04/26

## Location

## Loc Qty

## Loc Code

ST355

256

112243 ✓

156

119017

100

D2646

Manufactured

No

270

Each

114.0000

1

1

\*D2646\*

Aft Cap

\*\*

1

(2P)

12/04/26

## Location

## Loc Qty

## Loc Code

FP002

114

62678

5

68280

5

70945

1

71070

2

73294

1

73825

2

78018

22

79500

32

79562 ✓

44

D3413-1

Manufactured

No

270

Each

73.0000

1

1

\*D3413-1\*

Ring

\*\*

1

(2P)

12/04/26

## Location

## Loc Qty

## Loc Code

ST420

18

70773

1

77940

1

79233

16

ST464

55

76754

33

80224 ✓

22

March-21-12 3:42:46 PM

Shop Packet Print

Page 8

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



DESIGN <b>CP</b>	DRAWN BY <b>PH</b>	<b>DART AEROSPACE USA, INC.</b> PORT HADLOCK, WA	
CHECKED <b>[Signature]</b>	APPROVED <b>[Signature]</b>	DRAWING NO. <b>D3274</b>	REV. D SHEET 1 OF 4
DATE <b>06.12.19</b>		TITLE <b>SKIDTUBE ASSEMBLY</b>	SCALE NTS
A	04.03.15	NEW ISSUE	
B	04.08.09	MOVE SADDLE HOLE: 42.14 WAS 42.76	
C	05.03.16	ADD -043; NEW INSERTS	
D	06.12.19	NEW INSERTS, SS WEARSHOE + GASKET	

RELEASED  
07.02.12  
DEO ATTACHED

Qty -041	Qty -043	Part Number	Description
X		D3274-041	SKIDTUBE ASSEMBLY
	X	D3274-043	SKIDTUBE ASSEMBLY
1	1	D2600-1-240	EXTRUSION
1	1	D2646	AFT CAP
12	12	D2649	CROSS BOLT SPACER
12	37	D3275-1	CROSS BOLT SPACER
1	1	D3282-041	FLOAT WEB
1	1	D3285-1	CAP
1	1	D3413-1	RING
1	1	D3415-041	NUT PLATE
1	1	D3535-15	WEARSHOE
1	1	D3535-23	WEARSHOE
1	1	D3535-35	WEARSHOE
1	1	D3535-39	WEARSHOE
1	1	D3536-15	GASKET
1	1	D3536-23	GASKET
1	1	D3536-35	GASKET
1	1	D3536-39	GASKET
9	9	D3537-1	WEARPAD
1	1	D3537-3	WEARPAD
78	78	ALS7-1032-130	INSERT (or AKS4-1032-130, ALS4-1032-130, AELS-1032-130)
80	80	AN3C4A	BOLT
1	1	AN4C5A	BOLT
1	1	AN960C416	WASHER
80	80	AN960C10L	WASHER
2	2	CCR264SS3-3	RIVET
2	2	CR3212-4-03	RIVET
2	2	NAS1515H3L	WASHER

#### GENERAL NOTES:

- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- DAMAGE TOLERANCE ON FWD BEND:  
THERE SHOULD BE NO VISIBLE WRINKLES IN THE BEND FROM THE GROUND TO A HEIGHT OF 7 INCHES ABOVE THE GROUND. IT IS ACCEPTABLE TO POLISH OUT GOUGES UP TO 0.020 DEEP IN THE BENT PORTION OF THE TUBE. A MAXIMUM REDUCTION IN DIAMETER OF 0.150" IS ACCEPTABLE IN THE BENT PORTION OF THE TUBE.
- ALL HOLES DRILLED ON CENTERLINES.
- BOND D3282-041 FLOAT WEB INTO D3274-1/-3 OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241/291 ADHESIVE PER DART QSI 015. ENSURE HOLES LINE-UP.
- WELDING TO BE DONE PER DART QSI 004.
- FINISH: - ACID ETCH, ALODINE ASSEMBLY PER DART QSI 005 4.1  
- POWDER COAT WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3
- DRILL Ø0.297 HOLES FOR ALS7-1032-130 INSERTS USING DT3274-1T2 BEFORE FINISH. INSTALL ALS7-1032-130 INSERTS AFTER FINISH. SEAL WEARSHOE BOLTS WITH SIKAFLEX -241/-291.
- SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.

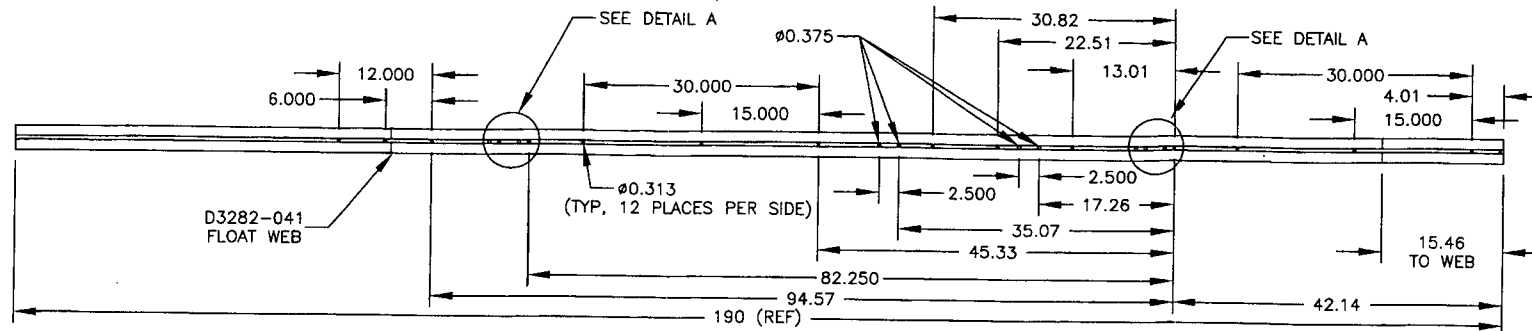
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SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO 02002405  
12/03/12

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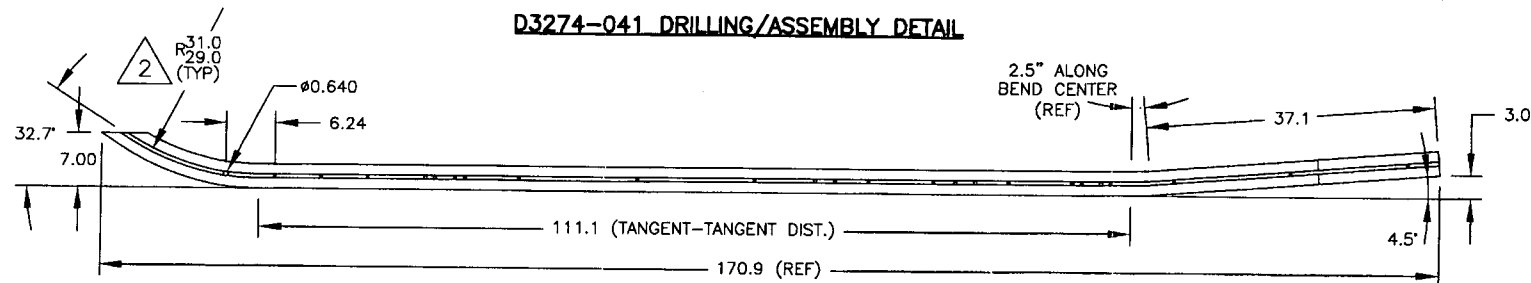
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82002

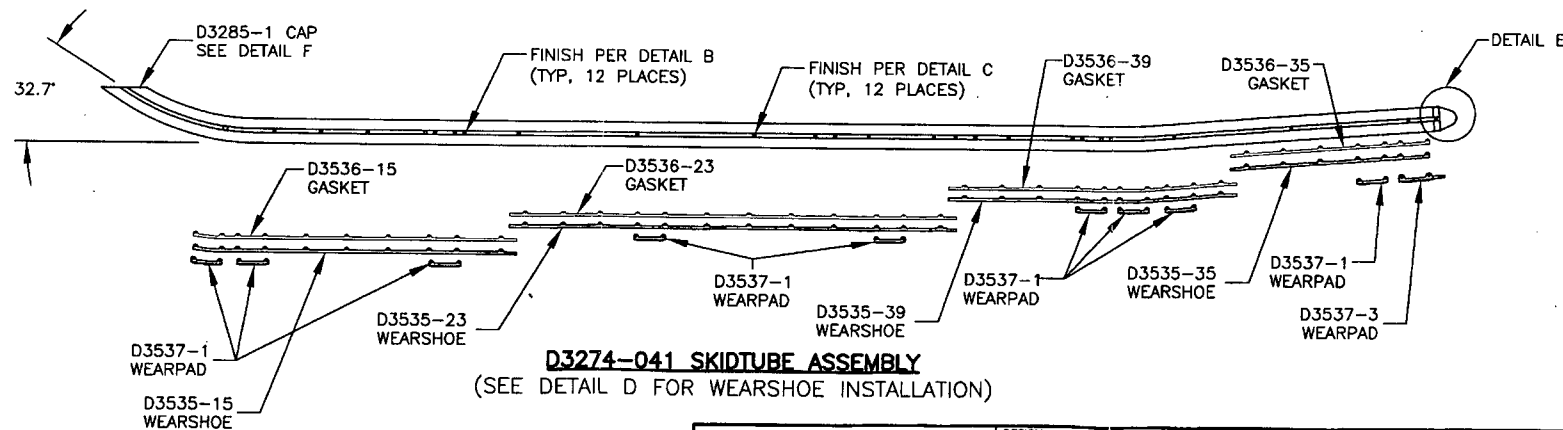
DEO ATTACHED



**D3274-041 DRILLING/ASSEMBLY DETAIL**



**D3274-041 BEND/DRILLING DETAIL**



**D3274-041 SKIDTUBE ASSEMBLY**  
(SEE DETAIL D FOR WEARSHOE INSTALLATION)

RELEASED

07.02.12

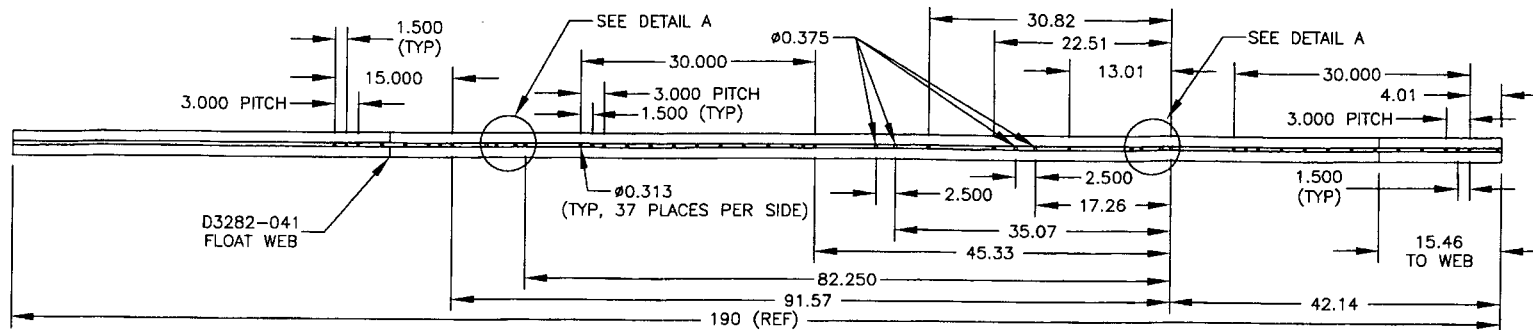
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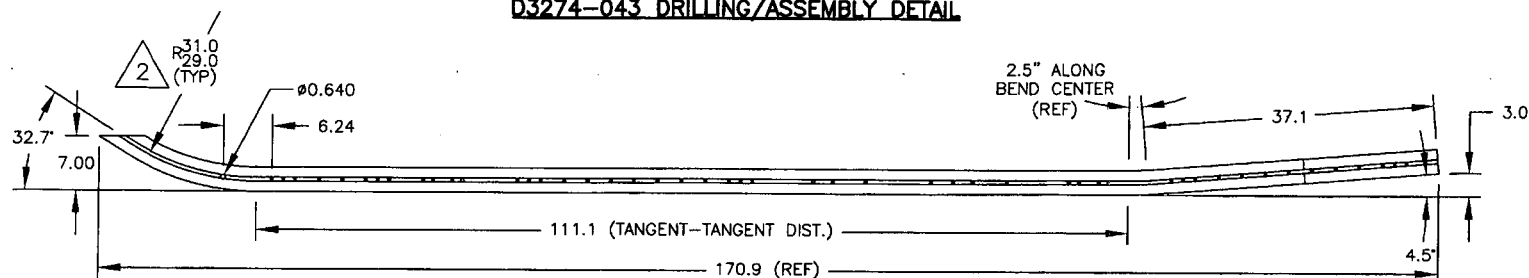
DESIGN	CP	DRAWN BY	PH	<b>DART</b> DART AEROSPACE USA, INC. PORT HADLOCK, WA
CHECKED	#	APPROVED	#	DRAWING NO. D3274
DATE	06.12.19	TITLE	SKIDTUBE ASSEMBLY	REV. D SHEET 2 OF 4 SCALE 1:15

82002

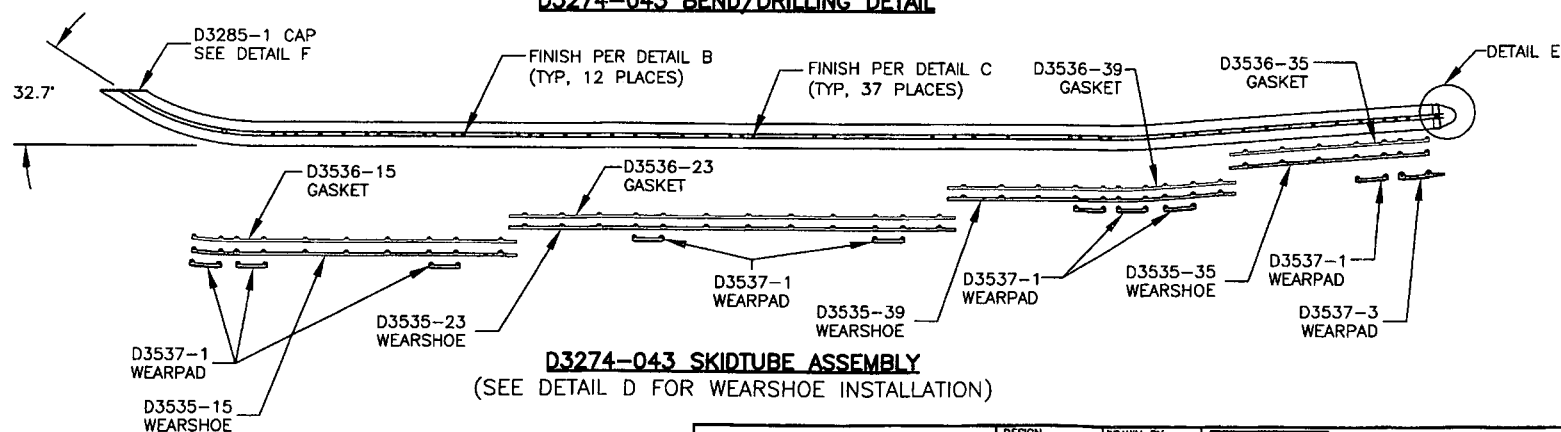
DEO ATTACHED



**D3274-043 DRILLING/ASSEMBLY DETAIL**



**D3274-043 BEND/DRILLING DETAIL**



**D3274-043 SKIDTUBE ASSEMBLY**

(SEE DETAIL D FOR WEARSHOE INSTALLATION)

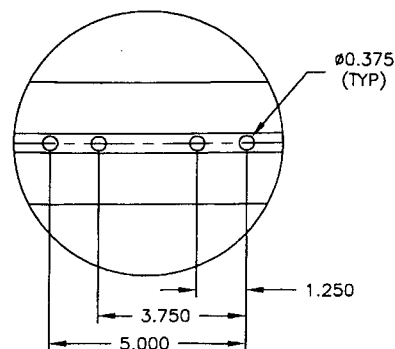
RELEASED

07.02.12

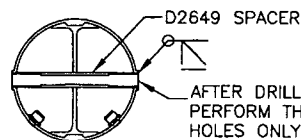
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CHECKED	APPROVED	DRAWING NO.	REV. D		
#	#	D3274	SHEET 3 OF 4		
DATE	TITLE		SCALE		
06.12.19	SKIDTUBE ASSEMBLY		1:15		

82002

# **DETAIL A: DRILL DETAIL**

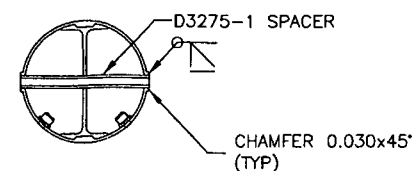


## **DETAIL B** FOR 0.375 HOLES ONLY

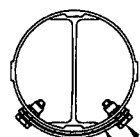


AFTER DRILLING AND BENDING ASSEMBLY  
PERFORM THE FOLLOWING FOR 0.375  
HOLES ONLY:  
1. CHAMFER HOLE 0.030x45°  
2. INSERT D2649 SPACER  
3. WELD INTO PLACE AND GRIND FLUSH  
4. C'BORE TO 0.313x0.75 DEEP

## **DETAIL C** FOR 0.313 HOLES ONLY

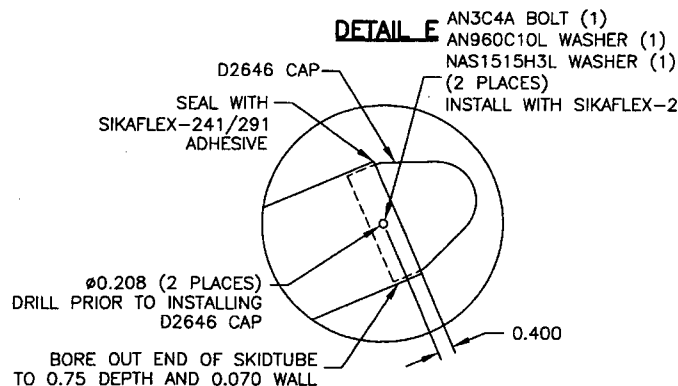


## **DETAIL D**

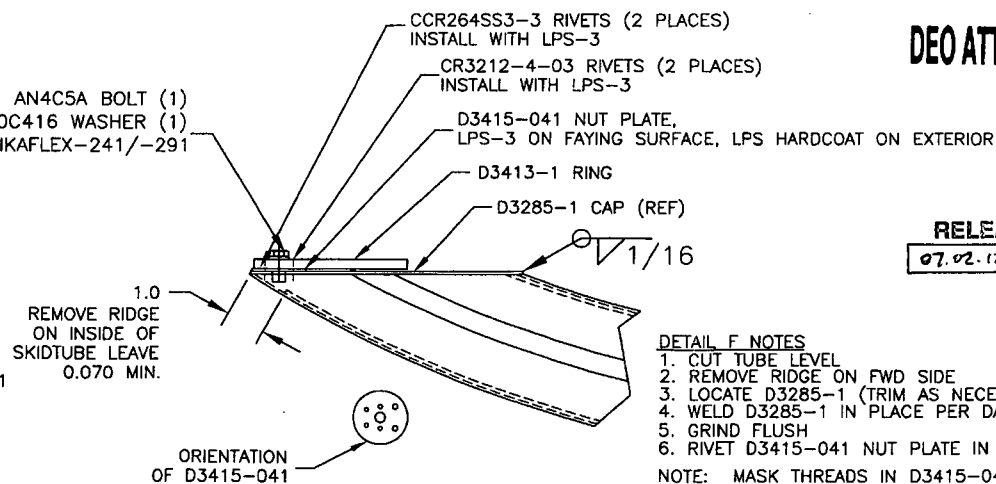


ALS7-1032-130 INSERT (1)  
AN3C4A BOLT (1)  
AN960C10L WASHER (1)  
(78 PLACES)  
GASKET/WEARSHOE/WEARPAD (REF)

## **DETAIL E**



## **DETAIL F: END FINISHING DETAIL**



**DETAIL F NOTES**  
1. CUT TUBE LEVEL  
2. REMOVE RIDGE ON FWD SIDE  
3. LOCATE D3285-1 (TRIM AS NECESSARY)  
4. WELD D3285-1 IN PLACE PER DART QSI 004  
5. GRIND FLUSH  
6. RIVET D3415-041 NUT PLATE IN PLACE  
NOTE: MASK THREADS IN D3415-041  
PRIOR TO FINISH

**DEO ATTACHED**

**RELEASED**  
07.02.12

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DATE		06.12.19	APPROVED	TITLE SKIDTUBE ASSEMBLY	SHEET 4 OF 4
					SCALE 1:3



82002

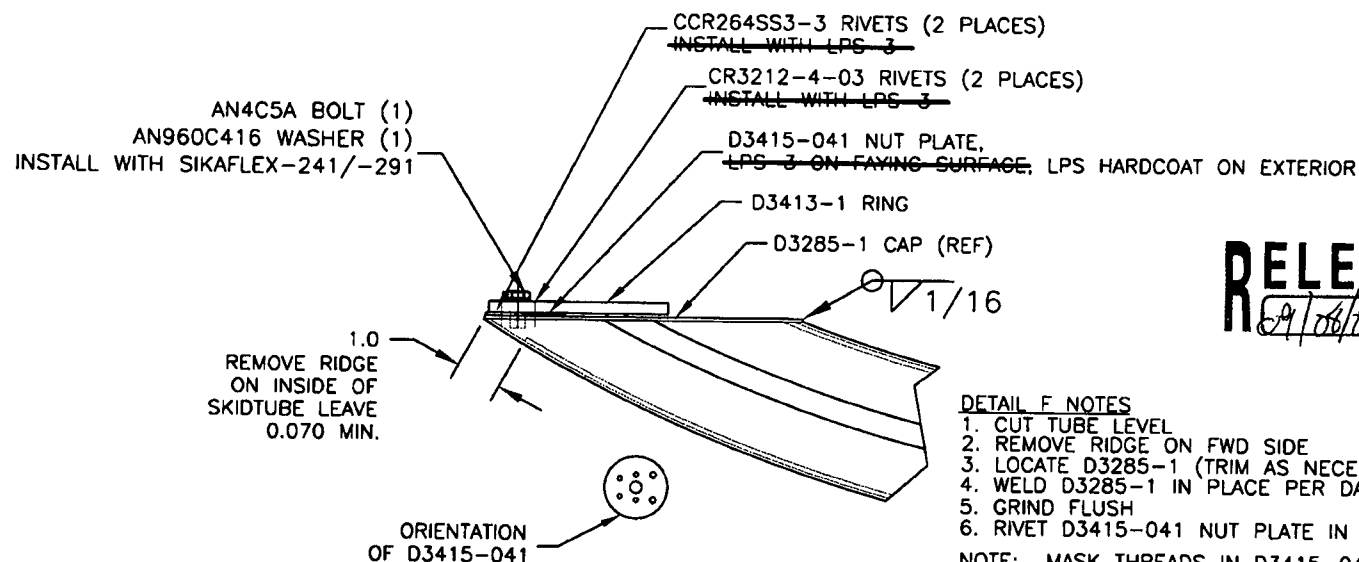
DRAWING NO. D3274	TITLE SKIDTUBE ASSEMBLY	REV. D	<b>DART AEROSPACE USA, INC ENGINEERING ORDER</b>	D.E.O. NO. D3274-D-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>CP</i>	CHECKED <i>A</i>	MFG. APPR. <i>A</i>	APPROVED <i>MAP</i>	DE APPR. <i>#</i>		
DATE 09.06.17	DATE 09.06.23	DATE 09/06/23	DATE 09/06/23	DATE 09.06.23		

LPS-3 IS NO LONGER USED DURING ASSEMBLY OF SKIDTUBE.

AMEND NOTE 8: "~~SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES 'LPS-3' AFTER FINISH AND INSTALLATION OF INSERTS.~~  
COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES 'LPS PROCYON' AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF  
POWDER COATING WITH MEK DEGREASER."

AMEND DETAIL F AS SHOWN:

### DETAIL F: END FINISHING DETAIL



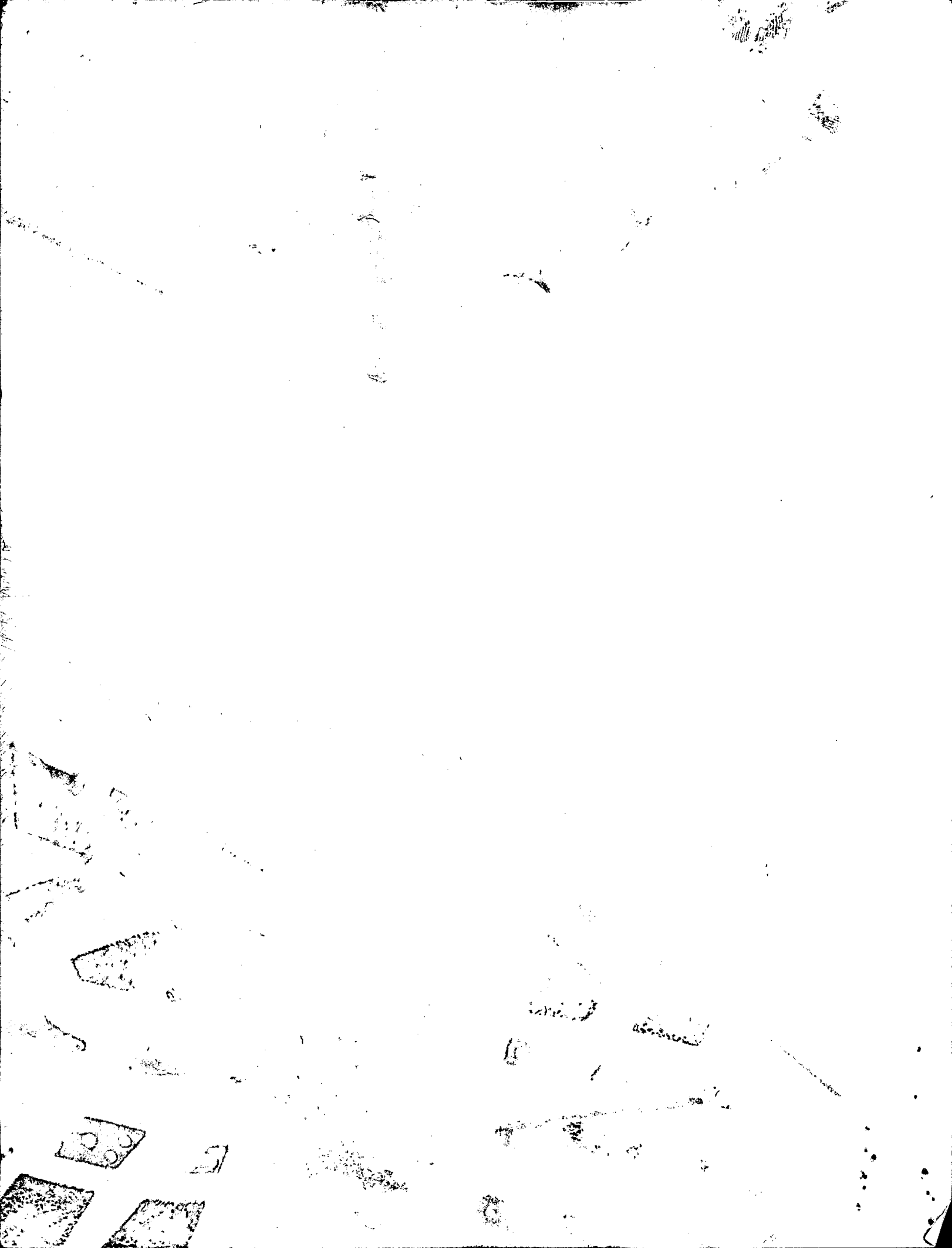
#### DETAIL F NOTES

1. CUT TUBE LEVEL
2. REMOVE RIDGE ON FWD SIDE
3. LOCATE D3285-1 (TRIM AS NECESSARY)
4. WELD D3285-1 IN PLACE PER DART QSI 004
5. GRIND FLUSH
6. RIVET D3415-041 NUT PLATE IN PLACE

NOTE: MASK THREADS IN D3415-041  
PRIOR TO FINISH

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NO. 290

AWS D17.1.2001  
QUALIFICATION TEST RECORD

Name: Barclay Elliott  
Job number: 80956  
Part number: D206-642-151  
Description: Skid tube  
Welding Process: Tig ☒ Mig ☐  
Base material: Alum.  
Current: AC ☒ DC ☐

TEST REQUIREMENTS AND RESULTS

Visual: pass ☒ fail ☐  
Penetration: pass ☒ fail ☐

UNACCEPTABLE

Cracks: pass ☒ fail ☐  
Undercut: pass ☒ fail ☐  
Pin holes: pass ☒ fail ☐  
Overlap (cold lap): pass ☒ fail ☐  
Porosity (surface): pass ☒ fail ☐  
Coloration: pass ☒ fail ☐

Qualifier David Kessel Date of Test Coupon 12.04.18  
Welder Barclay Elliott Date of Test Coupon 12.04.18

The above named individual is qualified in accordance with AWS D17.1.2001 to weld